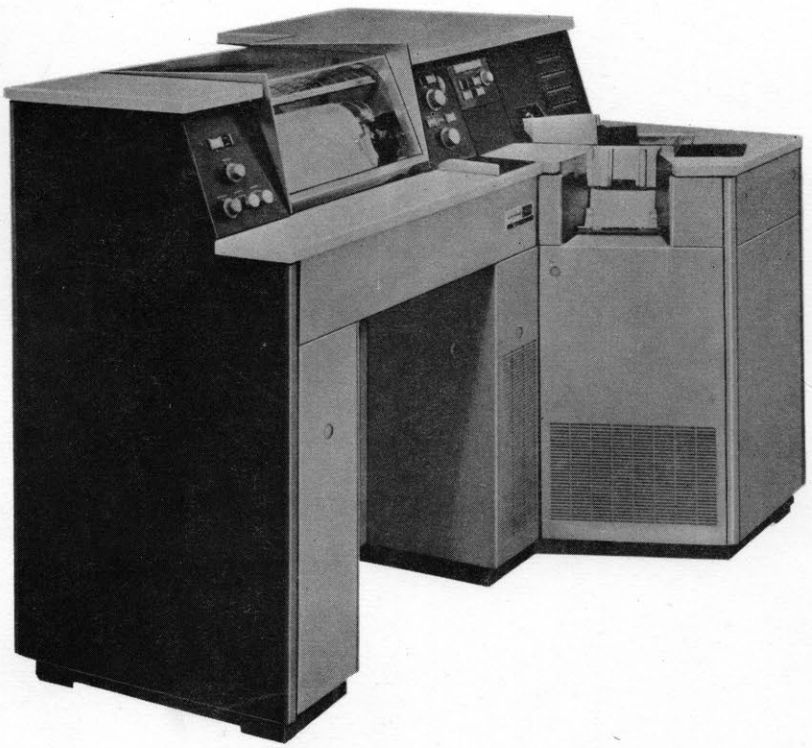
POSTERS ON COMPUTERS



J. WESTON WALCH, PUBLISHER

Portland Maine 04104

COMPUTERS

by

Christobel M. Cordell

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Box 1075 Portland, Maine 04104

COMPUTERS

Introduction

The word, "computer," has become familiar to almost everyone in recent years. We all know that computers are used to process income tax returns, to count votes, and to speed up financial transactions. The average person has a vague mental picture of what a computer looks like -- a big, box-like machine with a lot of disks, knobs, and lights. Most people however, don't have any idea where computers came from -- when and how they were invented. They don't know how many vastly different types of computers there are, varying from models that can be held in the hands to models that would fill a city block. Few people realize how important computers have become in the modern world. Without computers, for example, there would be no satellites orbiting the earth, no manned flights into outer space, no anti-missile defense systems. Direct dial telephone service would be impossible without computers, and many branches of the government would come to a standstill if the computers were removed.

Computers have made it possible to solve problems and to answer questions that until recently were impossible to solve or to answer. They have made it possible for man to explore space, to predict the outcome of national elections, to forecast the weather, and to eliminate many jobs of sheer drudgery.

There is no way in which the ordinary citizen can fully comprehend the nature and function of computers. It is possible, however, to acquire a much clearer understanding of what they are like and what they do. And the best and easiest way to acquire such understanding is through pictures. That is the purpose of these posters -- to illustrate a few of the many varied types of computers, from the earliest types to the most modern, and to cite briefly some of their accomplishments.

We hope that these posters will give added and more vivid meaning to the word, "computer."

(The staple at the left may be removed easily so that you can display the posters individually.)

Christobel M. Cordell

COMPUTERS

THE ABACUS

THE SUNDIAL

PASCAL'S "CALCULATING MACHINE"

LOW-COST COMPUTER

ELECTRONIC DATA PROCESSING SYSTEM

HIGH-VOLUME PROCESSING SYSTEM

ANALOG COMPUTER

WEATHER BUREAU COMPUTER

COMMUNICATIONS CONSOLE

DIGITAL COMPUTER

ANALOG COMPUTER

HONEYWELL COMPUTER CENTER

PARTS OF TWO COMPUTERS

CIRCUIT FOR GUIDANCE COMPUTER

CENTRAL AIR DATA COMPUTER SYSTEM

ELECTRONIC BRAIN

SMALL COMPUTER

DATA-PROCESSING COMPUTER SYSTEM

Cover photo: Part of a UNIVAC 1004 card processor. (Courtesy of UNIVAC.)

THE ABACUS

One of the earliest forms of computers was the abacus, which has been in constant use for over 5,000 years. As recently as 1947 an abacus was the winner in a problem-solving contest with a modern electric calculating machine. It took the electronic computer to best the abacus. The abacus was what is known as a "digital computer," because it was used to count and answer the question, "How many?" It was also known as a "passive computer," because it could not operate without the help of human hands. (Photograph courtesy of Bettmann Archives.)

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THE SUNDIAL

Another very early type of computer was the sundial. This differed from the abacus in two important ways. First, it was used to measure and answer the question "how much," rather than to count, and so was what is called an "analog computer." Secondly, the sundial was the first "active computer" in that it performed its functions without the aid of human hands. (Courtesy of Bettmann Archives.)

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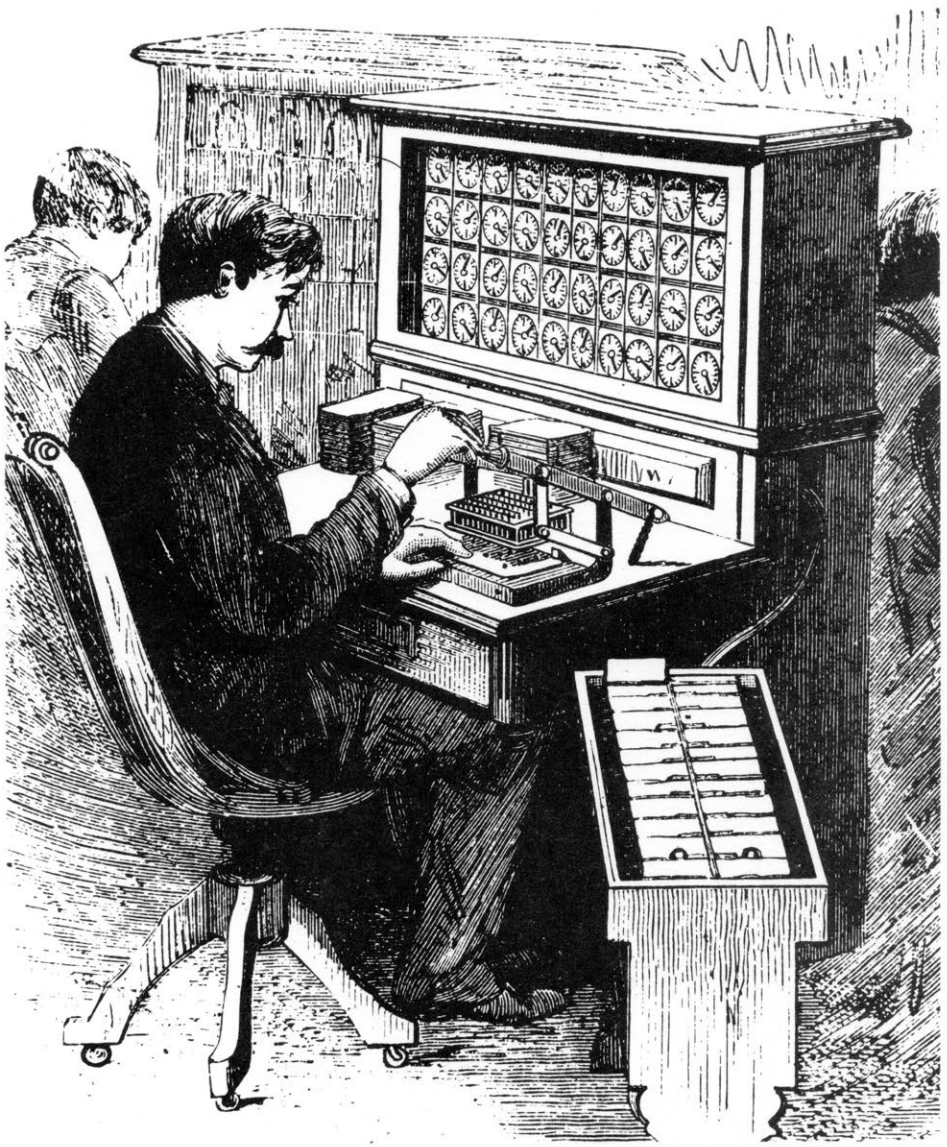
PASCAL'S "CALCULATING MACHINE"



The first "calculating machine" that could perform mathematical operations was invented in 1642 by Blaise Pascal, a young Frenchman who got tired of adding up long columns of figures by hand. His computer was a gear-driven adding machine which could accurately add up to six columns of figures. (Photograph courtesy of Bettmann Archives.)

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LOW-COST COMPUTER

Here we see a desk-type, low-cost computer designed for a wide range of business applications. These include payroll, inventory, accounting and invoicing. It provides high-speed computation as well as descriptive alphabetical information. (Photograph courtesy of Friden, Inc., a subsidiary of Singer Company.)

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ELECTRONIC DATA PROCESSING SYSTEM

Here is a complete electronic data processing system, designed for general banking applications. A system like this will handle practically all of a bank's transactions automatically: recording checks, debiting and crediting accounts, making out trial balances, monthly statements, etc. The strange-looking figures which are at the lower edge of our modern checks make it possible for the check to be processed by computers. (Courtesy of Burroughs Company.)

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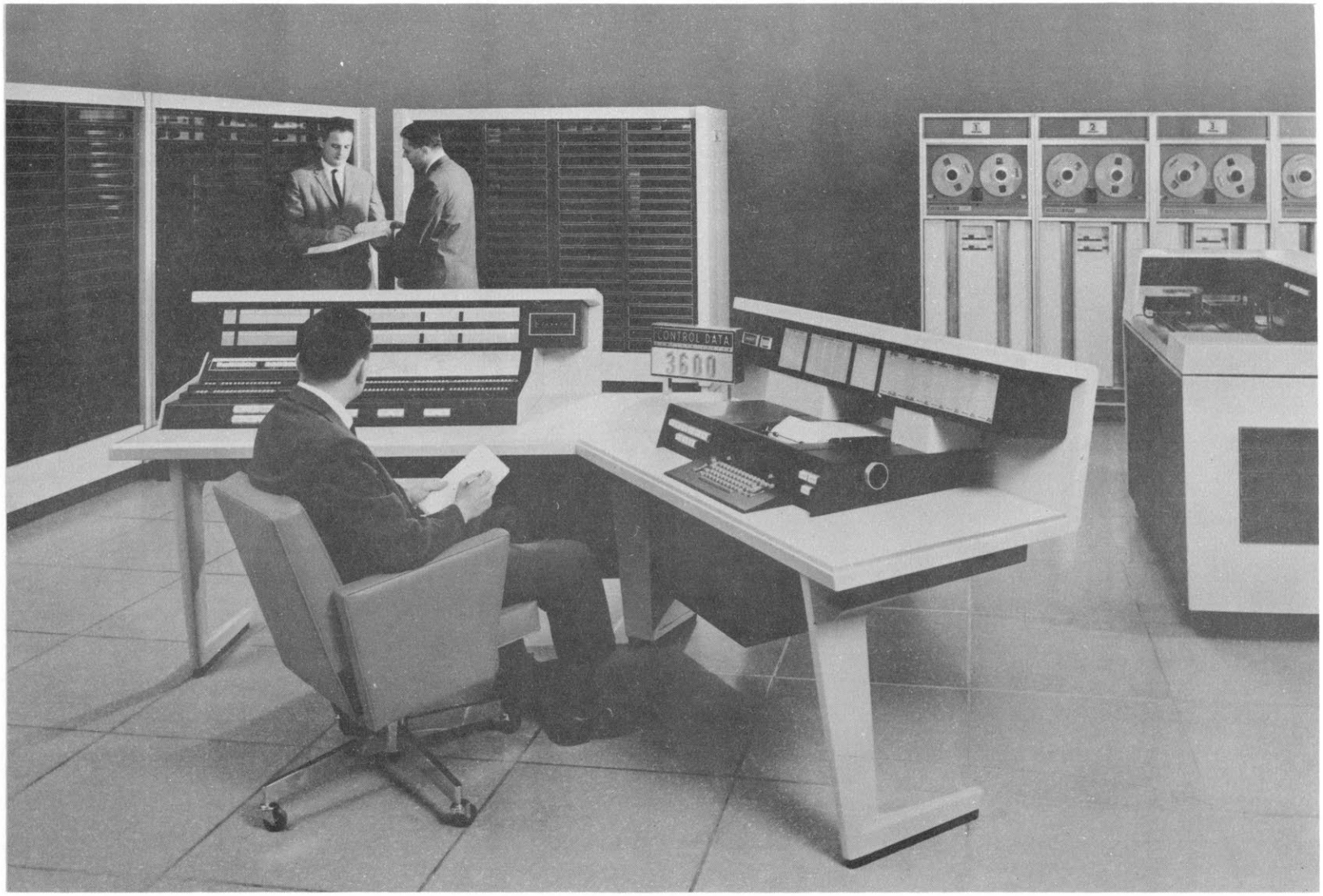
HIGH-VOLUME PROCESSING SYSTEM



This is a complex, high-volume processing system that can be used by large industrial, scientific, governmental or commercial organizations. Over 20 such complete installations are now in use around the world. This system can store a vocabulary of 262,144 words as compared to the thousand or so words stored in a small desk-type computer. (Photograph courtesy of Control Data Corporation.)

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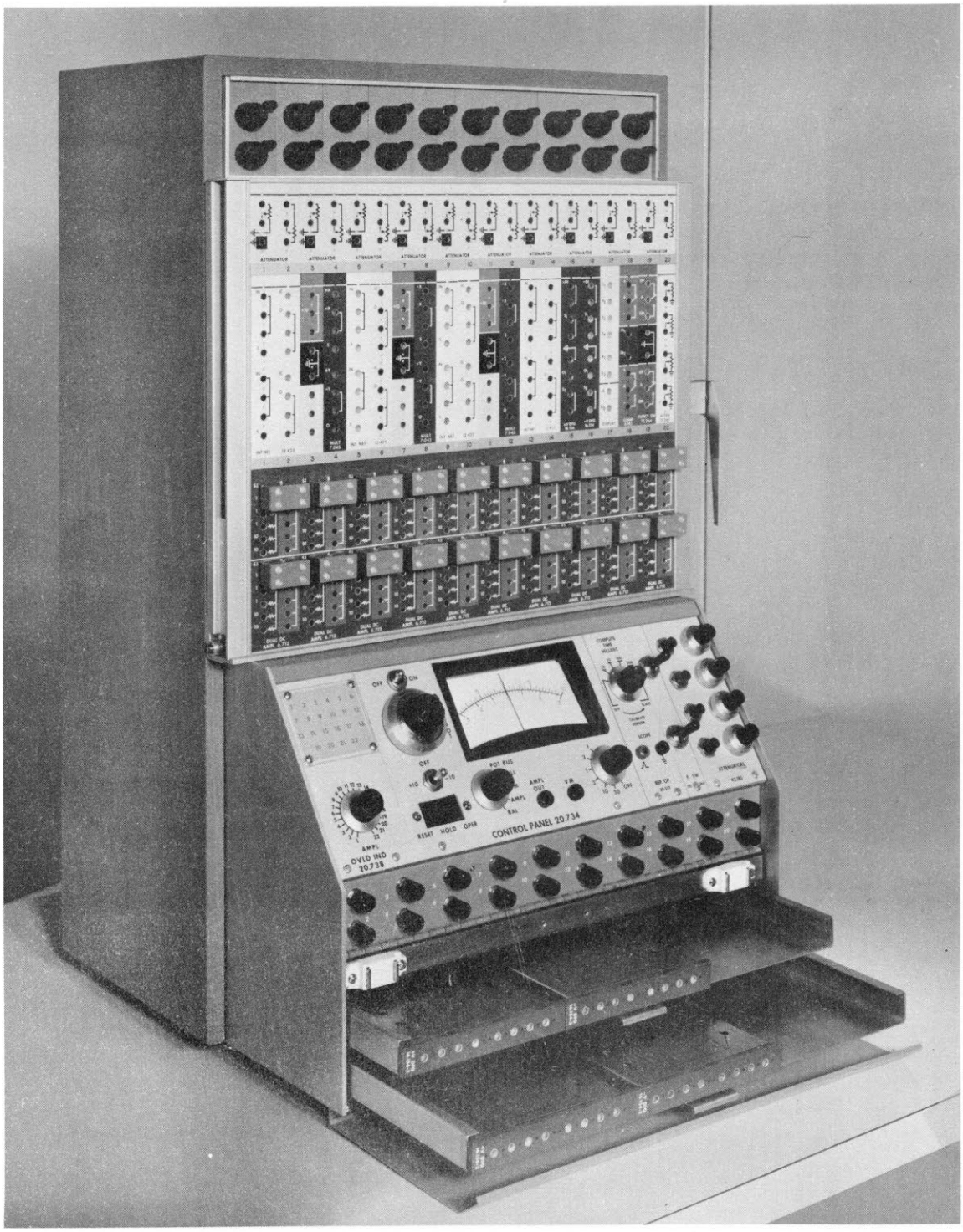
ANALOG COMPUTER



This desk-size analog computer is designed for mathematical operations. It is capable of performing such operations as summation, integration and sign-changing, as well as multiplication, division, etc. Scientists and engineers use such computers for solving complex differential equations such as those concerned with heat flow, electrical current, flight of a missile, etc. (Courtesy of Electronic Associates.)

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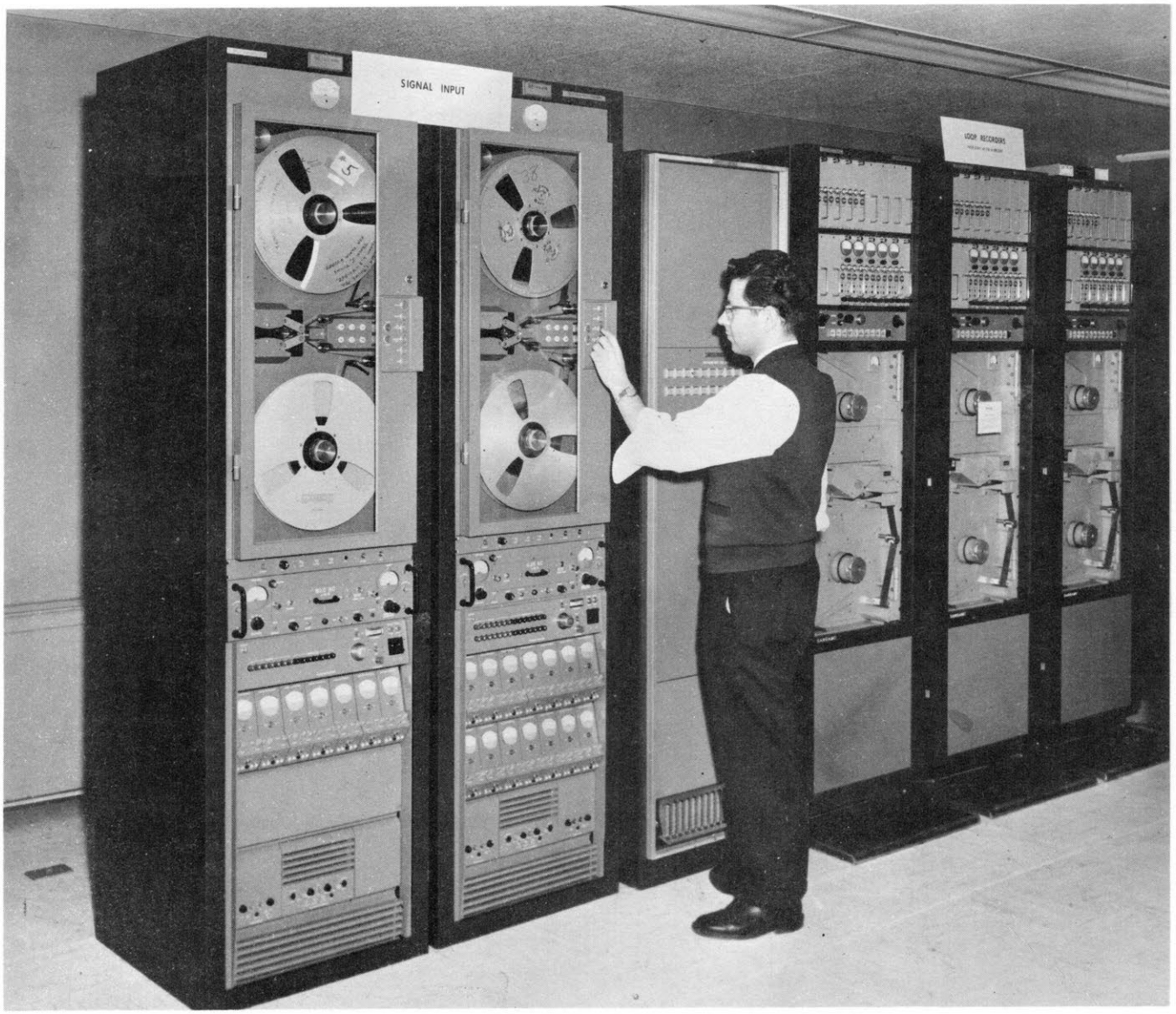
WEATHER BUREAU COMPUTER



A small part of the computer equipment at the United States Weather Bureau's National Weather Satellite Center in Washington, D.C. When weather satellite signals are received from outer space, they are relayed from the Data Acquisition station to this center for processing and dissemination to forecast facilities. This picture shows signal input tape recorders. (Photograph courtesy of the U.S. Weather Bureau.)

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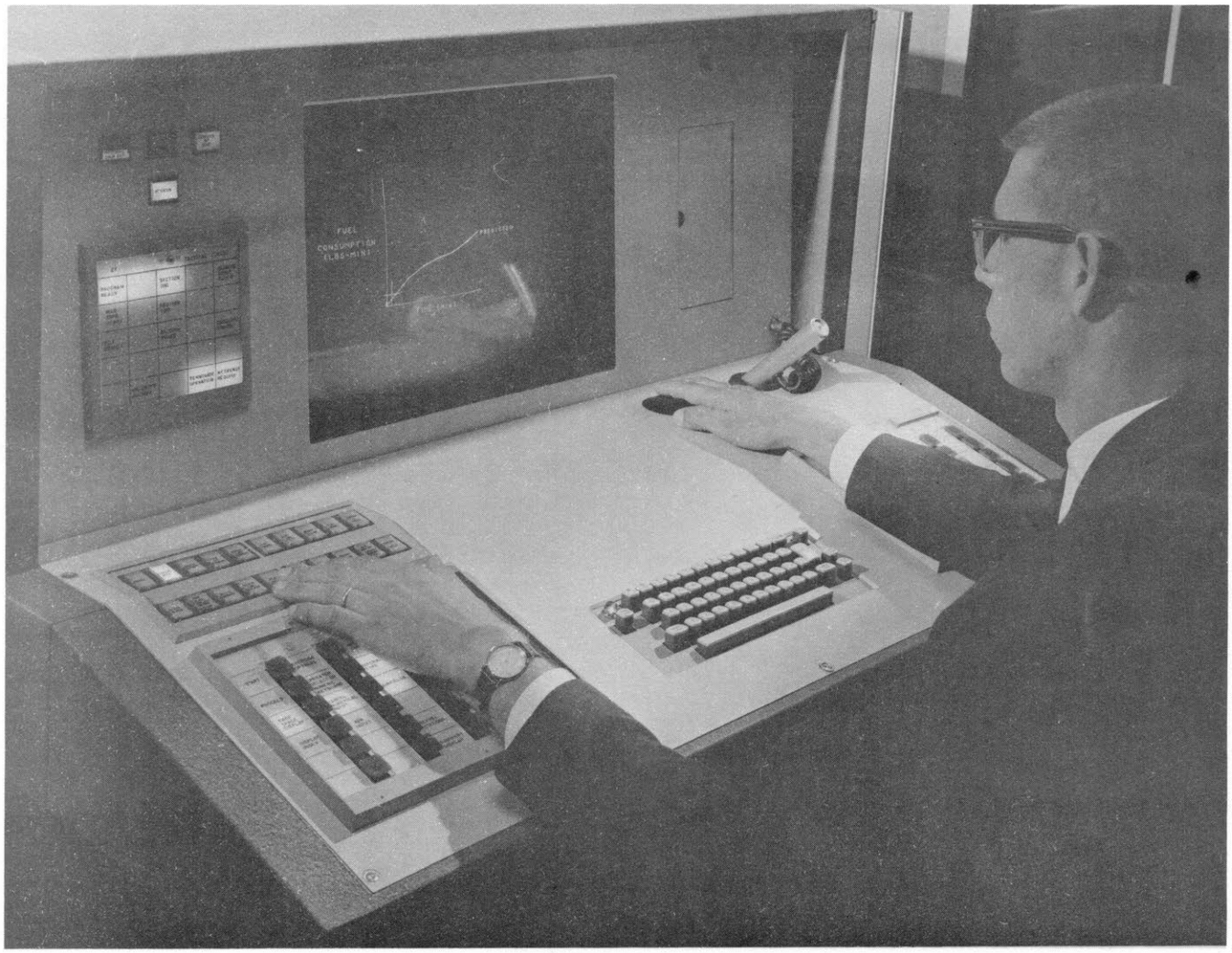
COMMUNICATIONS CONSOLE



A man-machines communications console. This is an unusual computer element in that it permits instantaneous access to any computer by the user in his natural language rather than in complex computer terminology. (Photograph courtesy of Thompson Ramo Wooldridge, Inc.)

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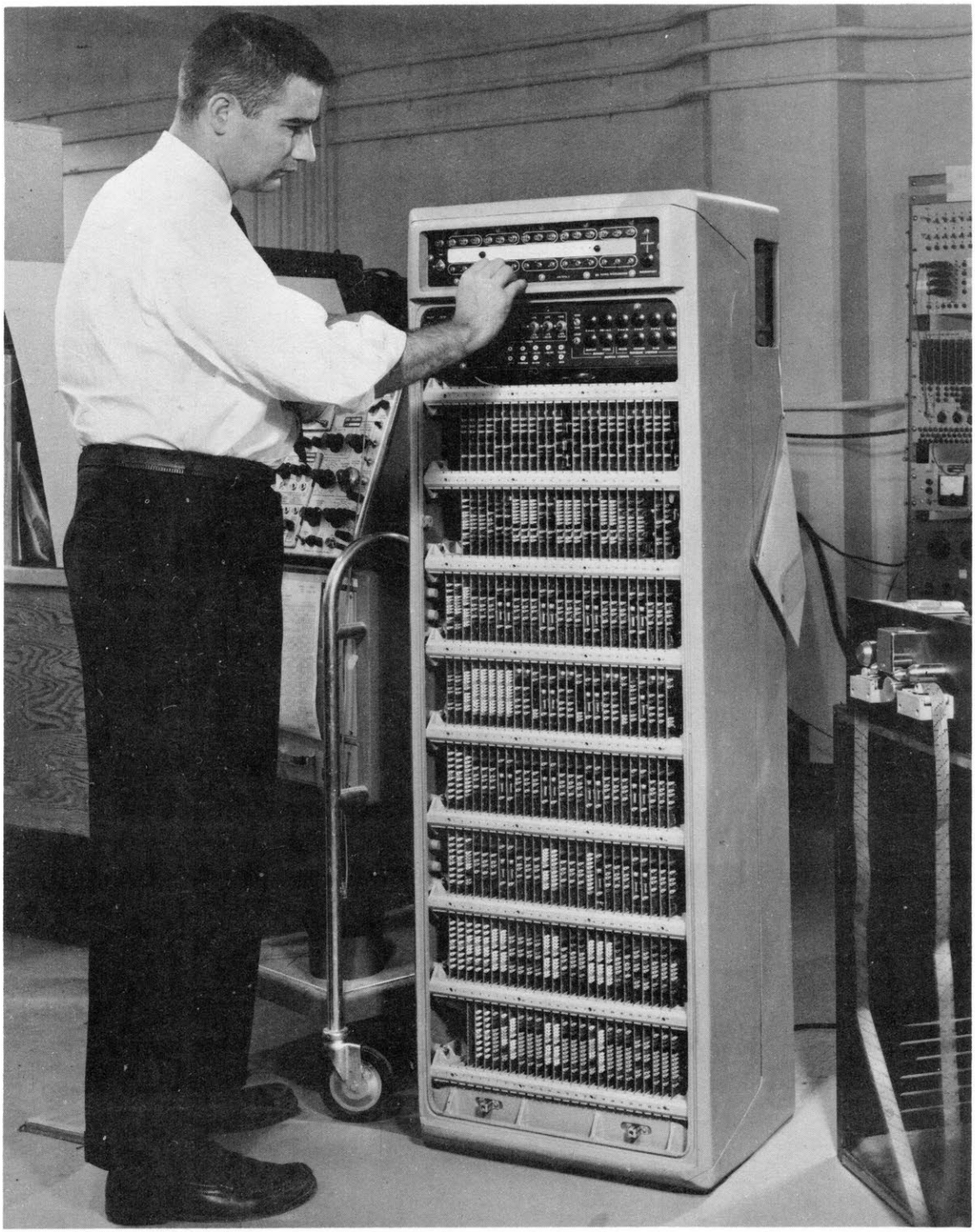
DIGITAL COUNTER



A Bunker-Ramo high-speed, general purpose, digital computer. This machine is designed primarily for use in military applications such as ship navigation, missile tracking, and reconnaissance. (Courtesy of Thompson Ramo Wooldridge, Inc.)

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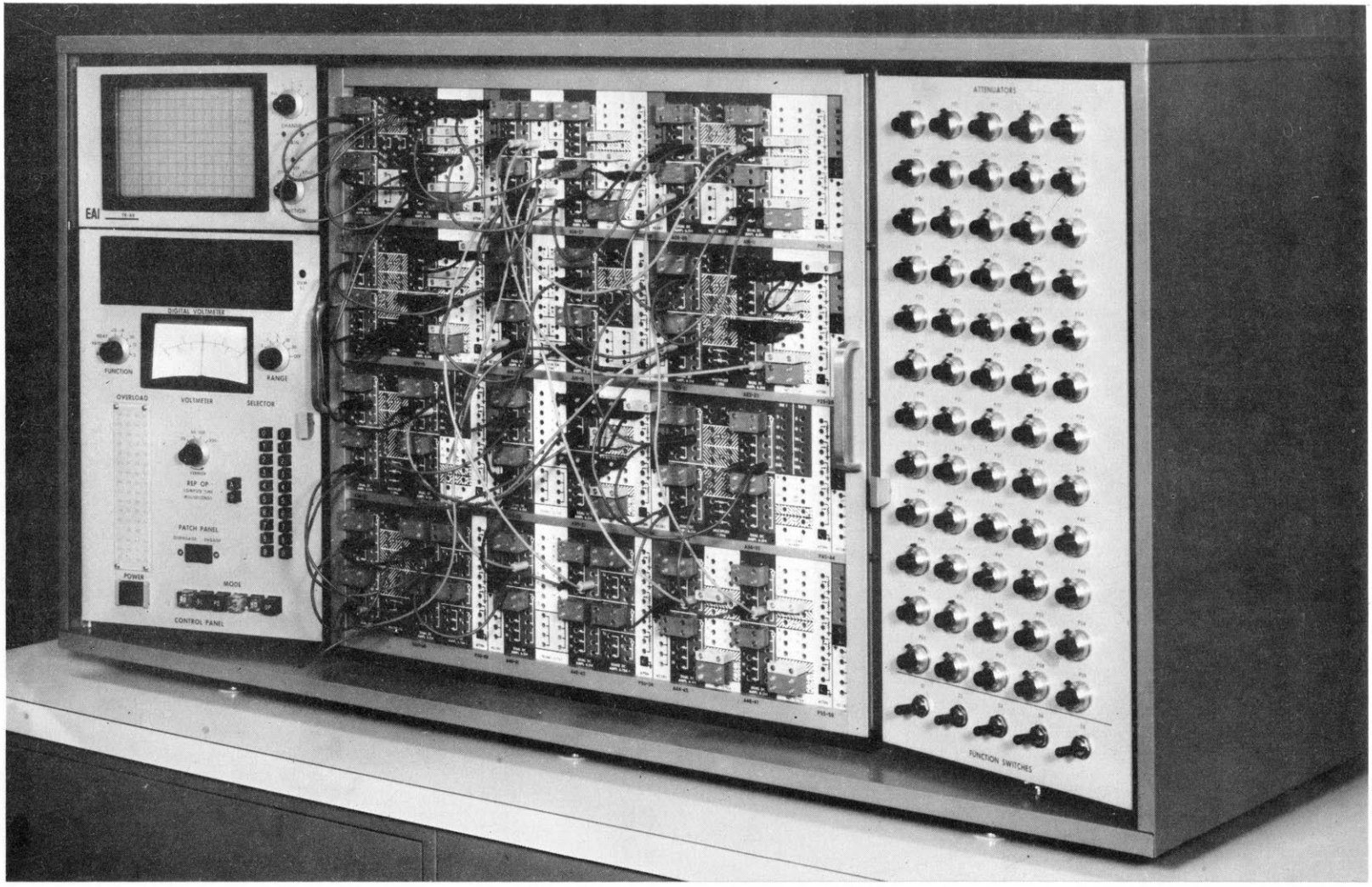
ANALOG COMPUTER



Here is another analog computer, used to solve a variety of problems. Engineers can experiment with new designs right on this computer and work out any "bugs" before the particular product is built. (Photograph courtesy of Electronic Associates.)

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HONEYWELL COMPUTER CENTER

Computer Center at Honeywell's new $5 million aerospace facility consists of 16 analog computers (foreground) and the most powerful Honeywell 800 digital electronic data processing system built to date (background). The Center is believed to be the first in industry that can perform scientific computation of an analogical and digital nature while simultaneously handling business problems. (Photograph courtesy of the Minneapolis-Honeywell Regulator Company.)

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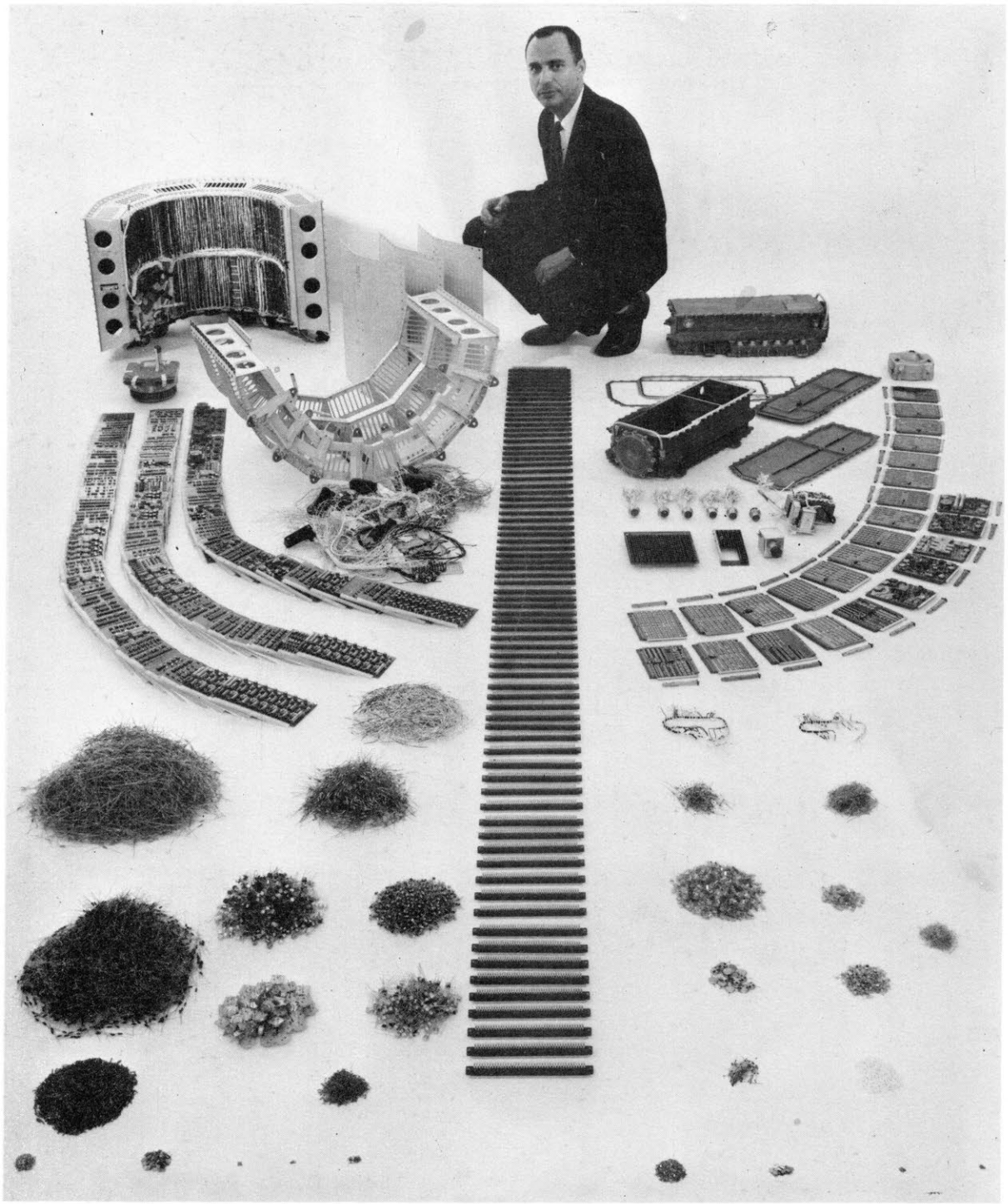
PARTS OF TWO COMPUTERS



Murray Hoffman, Autonetics project engineer, shows the difference between the size and design of the Minuteman I digital computer at the left and the machine designed for the newer Minuteman II at the right. In front of each computer are the parts which go into the machine. Minuteman I used 14, 711 parts; Minuteman II uses 5, 510 micro-electronic parts. Connector boards for Minuteman I computers divide the display. (Photograph courtesy of Autonetics, a division of North American Aviation, Inc.)

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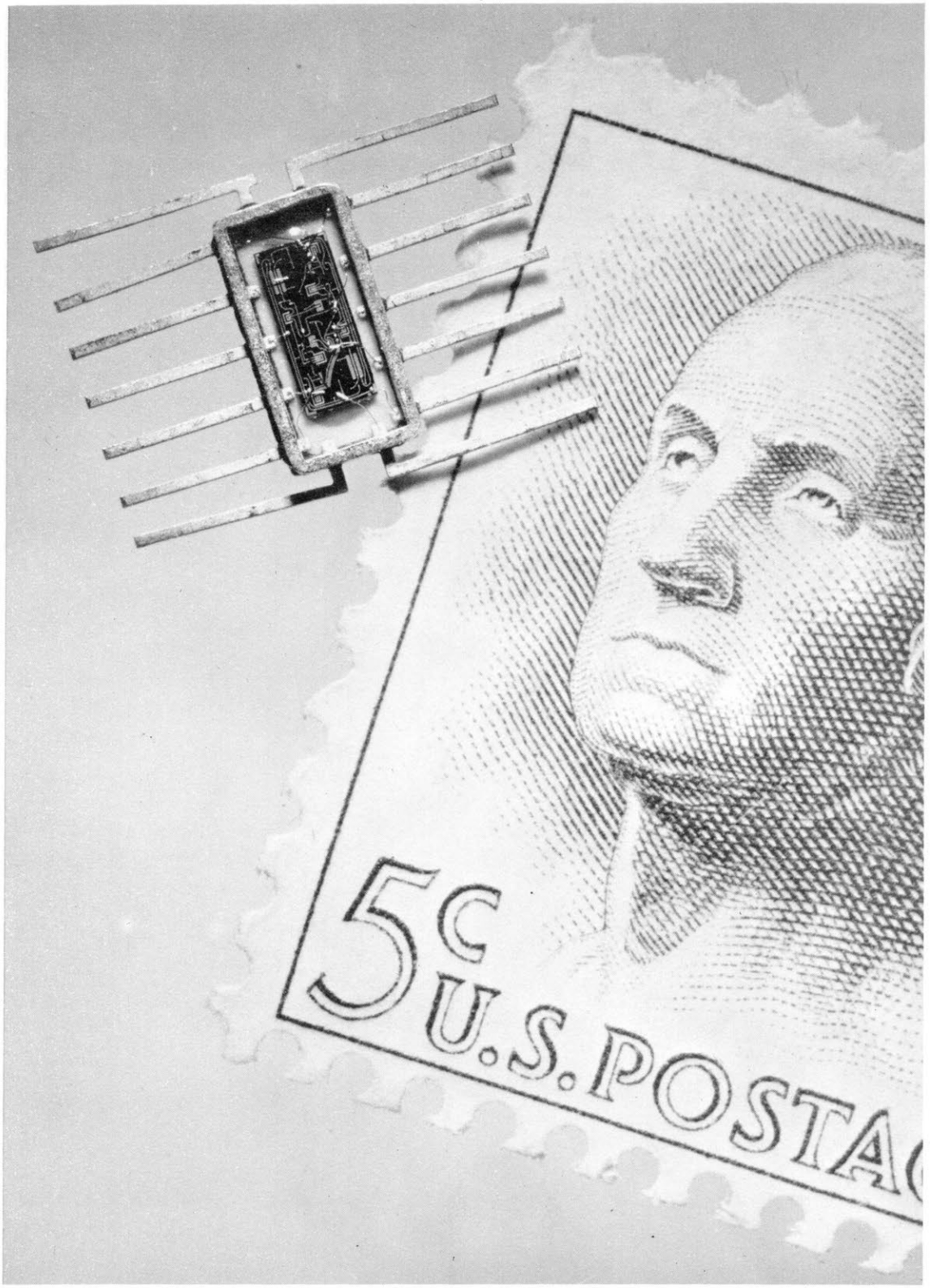
CIRCUIT FOR GUIDANCE COMPUTER



Comparison with a postage stamp gives a good idea of the size of the tiny integrated circuit used in this guidance computer for the Air Force's Minuteman missile. (Photograph courtesy of Autonetics.)

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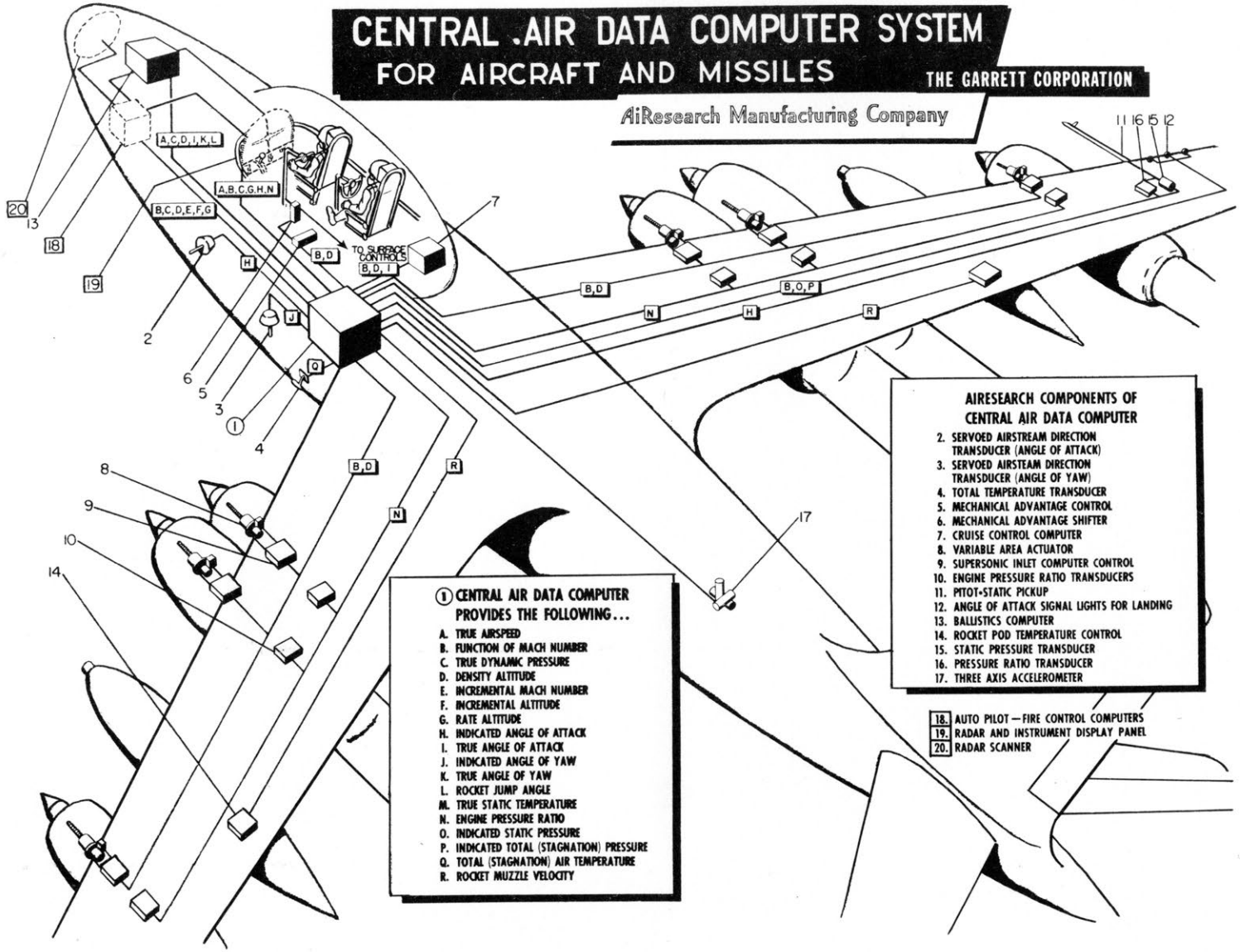

A computer system for aircraft and missiles is shown in this sketch. It illustrates how many different phases of flight and maneuvering are controlled by electronic computers. (Photograph courtesy of AiResearch Manufacturing Company.)

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ELECTRONIC BRAIN

Electronic brain for the altitude stabilization and control system of the Project Mercury space capsule gets a final check by technician Gerry Borasch at Minneapolis-Honeywell Regulator Company. Logic panel, left foreground, contains over 3,000 electronic connections that will make vital decisions during the capsule's flight through space. This computer, in conjunction with gyroscopes and reaction jets. will stabilize the capsule to prevent tumbling, will position it properly during its flight, and reposition it for re-entry. The system was developed by Honeywell for the McDonnell Aircraft Company. (Courtesy of Minneapolis-Honeywell.)

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SMALL COMPUTER

Mighty mite computer capable of guiding aerospace, marine or land vehicles rests lightly in the hands of Carol Lee. A product of Autonetics Division of North American Aviation, Inc., the D26J-1 is the tiniest member of a new family of compact, lightweight computers. Its statistics: 5 by 6.5 by 13.5 inches; wt., 13 lbs.; 1024-word memory. Its microelectronics are equal to the circuitry of approximately 400 TV sets. (Photograph courtesy of Autonetics.)

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DATA-PROCESSING COMPUTER SYSTEM

The UNIVAC 1107, a data-processing computer system manufactured by Remington Rand Company. Designed for a wide variety of applications, the UNIVAC 1107 occupies a hundred and fifty square feet of floor space, can be rented for $40,000 to $60,000 a month, and will be delivered in eighteen months to two years following acceptance of a contract. (Photograph courtesy of UNIVAC, a division of Sperry Rand Corporation.)

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